

KHANAK, E.

Providing the Hungarian Cotton Industry with Spare Parts. Leka Promishlenost  
(Light Industry), #12:35:Dec. 1955

KHANALIYEV, N.M.

State of the excretory disintoxication processes and the degree of hemoconcentration in patients with burns treated with novocaine-furacillin-pyocetanin solution. Izv. AN Azerb. SSR. Ser. biol. i med. nauk no.3:95-100 '63. (MIRA 16:6)  
(Burns and scalds) (Pharmacology)

KHANAMIROV, A.R.

Tissue therapy of hearing disorders. Vest. otorinolar., Moskva 14  
no. 3:37-39 May-June 1952. (CIAML 22:4)

1. Candidate Medical Sciences. 2. Of the Clinic for Diseases of  
the Ear, Throat, and Nose (Head — Prof. D. I. Zimont), Rostov Medical  
Institute.

KHANIN, A. A.

Otosclerosis

Penetration in otosclerosis. Vest. oto-rin. 14 no. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED

KHANAMIROV, A.R., dotsent

~~XXXXXXXXXXXXXXXXXXXX~~  
Fenestration of the ear labyrinth. Vest.oto-rin 17 no.3:34-39  
My-Je '55. (MLRA 8:9)

1. Iz kafedry bolezney ikha,gorla i nosa Rostovskogo-na-donu  
meditsinskogo instituta.  
(FENESTRATION  
technic)

KHANAMIROV, A. R. Doc: Med Sci -- (diss) "The Surgical Restoration  
of Hearing in Otosclerosis Patients." Len, 1957. 28 pp 20 cm.  
(Min of Health RSFSR, Len Sanitary-Hygiene<sup>S</sup> Medical Inst),  
250 copies (KL, 19<sup>5</sup>57, 88)

- 16 -

<sup>N</sup>  
KHANAMIROV, A.R., doktor med.nauk

Skin plastic surgery in tympanoplasty [with summary in English].  
Vest.oto-rin. 20 no.5:42-44 S-0 '58 (MIRA 11:12)

1. Iz kafedry bolezney ukha, gorla i nosa (zav. A.R. Khanamirov)  
Gosudarstvennogo meditsinskogo instituta, Rostov-na-Donu.

(EAR, MIDDLE, surgery,

tympanoplasty with skin segment from external ear fold  
(Rus))

(EAR, EXTERNAL, surgery

skin flap from posterior auricular fold in tympanoplasty,  
technic (Rus))

KHANAMIROV, A.R.

New variation of non-free graft in tympanoplasty. Vest.otorin.  
22 no.3:61-64 My-Je '60. (MIRA 13:10)  
(TYMPANIC MEMBRANE--SURGERY)



KHANAMIROV, A.R., prof. (Rostov-na-Donu)

Conservative tympanoplasty. Zhur. ush., nos. i gorl. bol. 21 nç.1:  
15-19 Ja-F '61. (MIRA 14:6)  
(EAR—SURGERY)

KHANAMIROV, A.R., prof. (Rostov-na-Donu)

New international anatomical terminology in otorhinolaryngology.  
Vestn. otorinolaring. 25 no.3:3-16 '63 (MIRA 17:1)

KHANAMIROV, A.R., prof.

Classification of tympanosclerosis. Zhur.ush., nos. i gorl. bol.  
24 no.5:30-31 S-O '64. (MIRA 18:3)

1. Kafedra otolaringologii Rostovskogo meditsinskogo instituta.

MIKHAYLOVSKIY, L.K.; POLLAK, B.P.; BALAKOV, V.F.; PHANAMIR Y.

Properties and use of single-axis magnetic ferrites in the millimeter band. Radiotekh. i elektron. 10 no.10:1739-1752 0 1965.  
(MIRA 18:10)

KHANAMIROVA, A.A.

Investigating the association of germanium with an organic  
mass of coal. Trudy IGI 21:88-98 '63. (MIRA 16:11)

S/171/61/014/006/003/005  
E075/E136

**AUTHORS:** Manvelyan, M.G., Khanamiryan, A.A.,  
Bakhchisaraytseva, S.A., Mkrtchyan, N.T., and  
Taliashvili, B.A.

**TITLE:** Removal of silicon from pure potassium aluminate  
solutions

**PERIODICAL:** Akademiya nauk Armyanskoy SSR. Izvestiya.  
Khimicheskkiye nauki, v.14, no.6, 1961, 537-549

**TEXT:** The object of the present work was to study the effect  
of factors such as temperature, exposure and caustic modulus of  
original solution on the removal of silicon from pure potassium  
aluminate solutions. The apparatus used was a stainless steel  
autoclave fitted with a stirrer and a heating jacket. The  
solutions composed of potassium aluminate and potassium silicate  
were heated at various temperatures (150-225 °C) for 1 to 10 hours.  
It was found that the increasing temperature leads to a better  
degree of separation of silicon from the aluminate solutions.  
The addition of  $Al_2O_3$  (2.0-20.0 g/l) to the solution did not  
increase the degree of separation. The addition of lime gave a  
Card 1/2

APPROVED FOR RELEASE: 09/17/2001

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Removal of silicon from pure ...

S/171/61/014/006/003/005  
E075/E136

considerable increase in the separation efficiency via the  
formation of calcium silicate. The optimal conditions for the  
removal of silicon from the solutions are as follows:  
a) temperature 200 °C, treatment 1 hour, CaO added 15.0 g/litre,  
 $\alpha_{caust} = 1.22$  (to obtain alumina of 1 (G1) grade containing  
0.12%  $SiO_2$ ); b) temperature 200 °C, treatment 0.5 hours, CaO  
added 20.0 g/litre,  $\alpha_{caust} = 1.22$  (to obtain alumina of G1 grade  
containing 0.11%  $SiO_2$ ); c) temperature 200 °C, treatment 2 hours,  
CaO added 15.0 g/litre,  $\alpha_{caust} = 1.18$  (to obtain alumina of higher  
purity than the grade 1 (G0) containing 0.06%  $SiO_2$ );  
d) temperature 200 °C, treatment 2 hours, CaO 20.0 g/litre,  $\alpha_{caust} = 1.19$   
(to obtain alumina of higher purity than grade G0  
containing 0.025%  $SiO_2$ ). The proportion of  $Al_2O_3$  in the  
solutions precipitating out under the above conditions is of the  
order of 8.77-11.66%. There are 4 figures and 6 tables.

**ASSOCIATION:** Institut khimii Sovnarkhoza ArmSSR  
(Chemistry Institute, Sovnarkhoz Arm. SSR)

**SUBMITTED:** July 15, 1961

Card 2/2

MANVELYAN, M.G.; KHANAMIRYAN, A.A.; NIKOGOSYAN, B.V.; STEPANYAN, M.G.

Use of white slime as an active additive especially for desiliconizing  
potassium aluminate solutions. TSvet. met. 37 no.9:43-46 S '64.  
(MIRA 18:7)

KHANAMIRYAN, Kh.M.

Polarographic study of the catalytic decomposition of hydrogen peroxide in homogeneous alcohol-aqueous solutions. Izv. AN Arm. SSR. Khim.nauki 18 no.1:6-9 '65.

(MIRA 18:5)

1. Armyanskiy nauchno-issledovatel'skiy institut vinogradarstva, vinodeliya i plodovodstva.



DZHANPOLADYAN, L.M.; KHANAMIRYAN, Kh.M.; ABRAMYAN, A.G., red.

[Polarographic methods for the analysis of brandy and  
wine] Poliarograficheskie metody analiza kon'iakov i  
vin. Erevan, In-t nauchno-tekhn. informatsii, 1962.  
10 p. (MIRA 17:3)

KHANAMIRYAN, S.A.

The 6S86 centerless internal grinding machine. Biul.tekh.-ekon.  
inform. no.8:45-47 '61. (MIRA 14:8)  
(Grinding machines)

MANVELYAN, M.G.; KHANAMIRYAN, A.A.; BAKHCHISARAYTSEVA, S.A.;  
TALIASHVILI, B.A.; MKRTCHYAN, N.T.

Desiliconizing pure potassium aluminate solutions.  
TSvet. met. 35 no.7:45-51 JI '62. (MIRA 15:11)  
(Potassium aluminate)

MANVELYAN, M.G.; KHANAMIRYAN, A.A.; MKRTCHYAN, N.T.; BAKHCHISARAYTSEVA, S.A.;  
TALIASHVILI, B.A.

Desiliconisation of pure potassium aluminate solutions in presence  
of chemical additives. TSvet. met. 35 no.11:66-74 N '62.  
(MIRA 15:11)

(Potassium aluminate) (Silicon)

KHANANASHVILI, L. M. Cand Chem Sci -- (diss) "Interaction Between Tetraalkoxy- and Alkylalkoxy-Silanes and ~~YMIK~~ Their Derivatives and Certain Inorganic Compounds." Mos, 1957. 12 pp 23 cm.

(Min of Higher Education USSR, Mos Order of Lenin Chemicotechnological Inst im D. I. Mendeleyev), 120 copies ~~★~~ (KL, 26-57, 105)

"APPROVED FOR RELEASE: 09/17/2001

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**APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721720018-3"**

KRESHKOV, A.P.; MYSHLYAYEVA, L.V.; KHANANASHVILI, L.M.

Interaction of tetraalkoxysilanes and their derivatives with  
several classes of inorganic compounds. Trudy MKHTI no.24:333-  
347 '57. (MIRA 11:6)

(Silane) (Hydroxides)



KHANANASHVILI, L.M.; MYSHLYAYEVA, L.V.; MIKHALEV, B.M.; SHKOL'NIY, V.Ye.

Effect of the aqueous solutions of sodium aluminates on  
alkylalkoxysilanes. Zhur.prikl.khim. 30 no.2:263-271 F '57.  
(MLMA 10:5)

1.Kafedra analiticheskoy khimii Moskovskogo khimiko-tekhnologicheskogo  
instituta imeni D.I. Mendeleeva.  
(Sodium aluminates) (Silane)

KHANANASHVILI, L.H.

Producing new silicate materials by combining silicon organic compounds with certain inorganic compounds. Soob. AN Gruz. SSR  
20 no. 3:307-314 Mr '58. (MIRA 11:7)

1. AN GruzSSR, Otdeleniye tekhnicheskikh nauk, Tbilisi. Predstavleno akademikom R.I. Agladze.

(Silicates)

07/71-08-0-15/66

**AUTHORS:** Kreshnov, A. P., Vyshlyayeva, L. V., Khachanashvili, L. N.

**TITLE:** Synthesis of Organosilicon Oxide Compounds From Aminosilanes.  
(Polucheniye kremneorganicheskikh oksisoyedineniy iz amino-  
silanov) I. Synthesis of the Alkyl-Alkoxy Silanes From Alkyl-  
phenyl Aminosilanes Which Are Obtained From Alkyl-Chloro-  
silanes (I. Polucheniye alkilalkoksisilanov iz alkilfenil-  
aminosilanov, sinteziruyemykh na osnovе alkilkhlorosilanov)

**PERIODICAL:** Zhurnal obshchey khimii, 1958, Vol. 28, № 8, pp. 2112-2114  
(USSR)

**ABSTRACT:** With the further development of the chemistry of organosili-  
con compounds their practical exploitation has as well in-  
creased. The alkyl-alkoxy silanes are used in the practice  
of the modification of various classes of inorganic and or-  
ganic compounds and as semiproducts for the synthesis of the  
high-molecular organosilicon compounds (Ref 1). The following  
synthesis methods of these compounds are known from publica-  
tions: 1) Alkylation of the alkoxy silanes or halogen alkoxy-  
silanes with the aid of organozinc compounds and metallic  
sodium (Ref 2) (2 Schemes). 2) Alkylation of the alkoxy silanes

Card 1/3

107/79-28-8-25/66

Synthesis of Organosilicon Oxycompounds From Aminosilanes. I. Synthesis of the Alkyl-Alkoxy Silanes From Alkyl-Phenyl Aminosilanes Which Are Obtained From Alkyl-Chlorosilanes

or halogen oxyasilanes with the aid of organomagnesium compounds (Refs 3-5) or organolithium compounds (Refs 6, 7) (2 Schemes). 3) Substitution of the hydrogen in alkyl silanes by alkoxy groups in the case of action of alcohols in the presence of lithium-, sodium-, potassium-, and rubidium alcoholate (1 Scheme). 4) Etherification of the alkyl halogen silanes with the aid of alcohols (1 Scheme). These methods have, however, certain shortcomings. Only the fourth method can be used economically, though the production of products is accompanied by secondary reactions. The authors worked out a new synthesis method of the alkyl-alkoxy silanes. It consists in the transformation of the alkyl-chloro silanes with aniline with subsequent treatment with the alcohols of the produced alkyl-phenyl amino silanes (both reaction processes are given in the schemes (a) and (b)). The yield for the scheme (a) amounted to 100%, for the scheme (b) to 80 - 95%. There are 12 references, 7 of which are Soviet.

Card 2/3

10/10- 3-10-1957  
Synthesis of Organosilicon Oxycompounds From Aminosilanes. 5. Synthesis of  
the Alkyl-Alkoxy Silanes From Alkyl-Phenyl Aminosilanes. High Yield  
From Alkyl-Chlorosilanes

SUBMITTED: July 10, 1957

Card 3/3

KRESHKOV, A.P.; MIKHAYLENKO, Yu.Ya.; MYSHLYAYEVA, L.V.; KHANANASHVILI, L.M.

Investigating the products of the reaction of some silicon organic compounds with water-alkaline solutions of aluminates, stannates, and plumbites by means of infrared absorption spectroscopy. Zhur.prikl. khim. 31 no.11:1746-1749 N '58. (MIRA 12:2)

(Silicon organic compounds--Spectra)

(Spectrum analysis)

5(0)

AUTHORS:

Kreshkov, A. P., Keshishyan, T. N., SOV/72-59-4-3/21  
Myshlyayeva, L. V., Khananashvili, L. M.

TITLE:

Investigation and Application of Synthetic Organic Silicates  
(Issledovaniye i primeneniye iskusstvennykh organicheskikh  
silikatov)

PERIODICAL:

Steklo i keramika, 1959, Nr 4, pp 11-14 (USSR)

ABSTRACT:

The theoretical bases of the formation of organic silicates are shown in the papers by A. P. Kreshkov, A. N. Chivikova, V. A. Matveyev, G. N. Nessonova, M. L. Darashkevich (Ref 1). The synthetic silicates have a number of valuable properties: good adhesion to glass, metal, asbestos, tissues, and abrasives. They may be used for the production of films for glass and metal which do not break in heating and they are also highly acid-proof. The products which are obtained on the basis of alkylalkoxy-silanes are characterized by a good solubility in water. Their aqueous solutions are used as hydrophobic impregnations of building material. A. P. Kreshkov, L. V. Myshlyayeva, L. M. Khananashvili (Ref 2) carried out their spectrum and X-ray structural analyses as well as the microcrystalloscopic investigation. Since it is possible to use

Card 1/2

Investigation and Application of Synthetic Organic  
Silicates

SOV/72-59-4-3/21

the obtained products as glues and coatings at high temperatures their behaviour in heating was thermographically investigated. For this purpose the self-recording pyrometer of the Academician N. S. Kurnakov was used as well as the torsion balance of the VT-type. In those investigations the authors refer to the papers by L. M. Khananashvili, L. V. Myshlyayeva, D. M. Mikhalev, V. Ye. Shkol'nyy (Ref 3). The characteristics of the products are given in the table. On figures 1, 3, 5, and 6 the heating curves of the products 1, 2, 5, and 6 are plotted and on figures 2, 4, and 7 the curves of weight in heating of the products 1, 2, and 6 are given. The crystallo-optical investigations were performed on the basis of the paper by D. S. Belyankin, V. V. Lapin, N. A. Toropov (Ref 4). As may be seen from the copyrights of A. P. Kreshkov, L. V. Myshlyayeva, L. M. Khananashvili (Ref 5) the hitherto used skin glue which is a shortage-good, may be replaced by a glue on the basis of synthetic silicates for the gluing of tissues to grinding disks. The products obtained may be used in various fields of building and silicate material industry. There are 7 figures, 1 table, and 6 Soviet references.

Card 2/2



83820

S/190/60/002/005/010/015  
B004/B067

15.8116 also 2209

AUTHORS: Andrianov, K. A., Khananashvili, L. M., Konopchenko, Yu. F.

TITLE: Synthesis of Eight-membered Mixed Organocyclosiloxanes and Their Polymerization

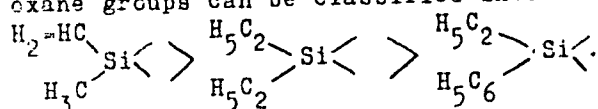
PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 5, pp. 719-727

TEXT: The authors cohydrolyzed two bifunctional organosilicon compounds:  $m(\text{CH}_3)_2\text{SiCl}_2 + n\text{RR}'\text{SiCl}_2 + (m+n)\text{H}_2\text{O} \rightarrow \left[ (\text{CH}_3)_2\text{SiO} \right]_m \left[ \text{RR}'\text{SiO} \right]_n + 2(m+n)\text{HCl}$ . By cohydrolyzing dimethyldichlorosilane and methylvinylchlorosilane they obtained heptamethylvinylcyclotetrasiloxane (1); hexamethyldivinylcyclotetrasiloxane (2); pentamethyltrivinylcyclotetrasiloxane, and by cohydrolyzing dimethyldichlorosilane with diethyldichlorosilane they obtained hexamethyldiethylcyclotetrasiloxane (4). Furthermore, by cohydrolyzing dimethyldichlorosilane with phenylethyldiethoxysilane, hexamethylethylphenylcyclotetrasiloxane (5) was obtained; and by hydrolyzing methylvinylchlorosilane in an acid medium, tetramethyltetravinylcyclotetrasiloxane (6) was obtained. The yields were about 80%. The compounds were analyzed by Z. M. Kuptsova. Their molecular weight and the bromine number of the

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Synthesis of Eight-membered Mixed Organocyclo- S/190/60/002/005/010/015  
siloxanes and Their Polymerization B004/B067

compounds containing vinyl groups were determined. N. P. Gashnikova took the infrared spectra. Fig. 1 shows the infrared spectra of (1) and (5). The physical data of the compounds are given in Table 1. The authors polymerized compounds (1) - (6) by means of potassium hydroxide at 130°C, and studied the influence exerted by the various radicals on the course of polymerization. Table 2 gives the results for (5) on variation of the KOH concentration between 0.5 and 1.5%. With 0.5% KOH the yield was 77.3%; with 1.5% KOH it was 91.5%, with decreasing viscosity. Fig. 2 shows the volume change in the polymerization of (5). The largest decrease in volume was observed with 0.5% KOH. Hence, the other compounds were polymerized by means of 0.5% KOH (Fig. 3). The experimental data are given in Table 3. According to their influence on the polymerization coefficient, the siloxane groups can be classified into the following series:



There are 3 figures, 3 tables, and 9 references: 2 Soviet, 4 US, 1 British, and 1 Japanese.

Card 2/3

30755

S/079/60/030/04/68/080  
B001/B011

5.3700

AUTHORS: Kreshkov, A. P., Myshlyayeva, L. V., Khananashvili, L. M.

TITLE: Investigations in the Field of Aminosilanes. II. Methods of Synthesizing Some Tetraalkoxy Silanes<sup>1</sup>

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 4, pp. 1347-1350

TEXT: The authors discuss the traditional methods of synthesizing tetraalkoxy silanes (Refs. 1-7). According to Ref. 4, the ternary mixture  $\text{Si}(\text{OCH}_3)_4$ - $\text{CH}_3\text{OH}$ - $\text{HCl}$  boils at  $69^\circ$ . These components react with one another in two stages: 1) by reaction of  $\text{HCl}$  with the alcohol, under formation of methyl chloride and water, 2) by the hydrolysis of ester by means of the separated water until the precipitate  $\text{nSiO}_2 \cdot \text{mH}_2\text{O}$  is formed. On analyzing the reaction products with a lower boiling temperature than that of  $\text{SiORCl}_3$ , the authors found them to contain considerable quantities of tetraalkoxy silanes and alcohol. The change in the composition of low-boiling fractions with temperature is represented in the form of a triangular diagram in the coordinates  $\text{Si}(\text{OR})_4$ - $\text{CH}_3\text{OH}$ - $\text{HCl}$ . Analytical and graphical data were similar for

Card 1/3

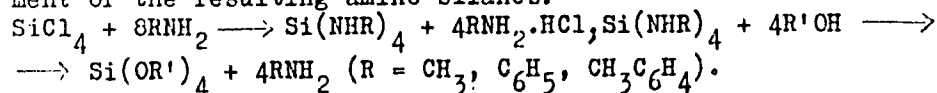
APPROVED FOR RELEASE: 09/17/2001

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Investigations in the Field of Aminosilanes.  
II. Methods of Synthesizing Some Tetraalkoxy  
Silanes

S/079/60/030/04/68/080  
B001/B011

some syntheses, which fact made it possible for this diagram to be used for the quick determination of the composition of the mixture by way of determining one component ( $\text{HCl}$ ). Processes were investigated which take place in the synthesis of tetraalkoxy silanes. It was found that some esters of orthosilicic acid can be obtained in much better yields by a complementary treatment of the side products as are obtained in the esterification with  $\text{SiCl}_4$ . A new method of synthesizing tetraalkoxy silanes was worked out by reacting chlorosilanes with different amines with a subsequent alcoholic treatment of the resulting amino silanes:



There are 1 figure and 14 references, 12 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut imeni D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

Card 2/3

25040  
S/062/61/001/006/002/010  
B118/B220

5.3700

AUTHOR: Andrianov, K. A., Vasil'yeva, T. V.,  
and Khananashvili, L. M.

TITLE: Condensation of methyl phosphinic acid  
with  $\alpha, \omega$  - diethoxy-dimethyl siloxanes

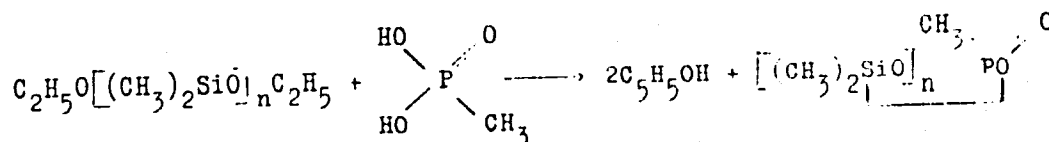
PERIODICAL: Akademiya nauk SSSR. Izvestiya.  
Otdeleniye khimicheskikh nauk, v. 1, no. 6, 1961, 1030-1035

TEXT: The present paper deals with the condensation of  $\alpha, \omega$ -diethoxy-dimethyl siloxanes with methyl phosphinic acid. This reaction proved to be an easy method of synthesizing the mixed organo-silicon phosphorus compounds resulting primarily in the formation of cyclic, not high-polymer compounds. An increase of the distance between the alkoxy groups in  $\alpha, \omega$ -diethoxy-dimethyl siloxanes does not alter the direction of the reaction. In any case, the reaction proceeds according to the following equation

Card 1/4

Condensation of methyl phosphinic...

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B118/B220



(n=1-5)

In the case of condensation of methyl phosphinic acid with  $\alpha, \omega$ -diethoxy-dimethyl siloxanes of the general formula  $\text{C}_2\text{H}_5\text{O}[(\text{CH}_3)_2\text{SiO}]_n\text{C}_2\text{H}_5$ , with  $n = 1$  to 5, it has been established that the siloxane bond does not split if  $n \leq 4$ . In this case, the cyclic compounds formed contain as many dimethyl siloxane groups as the initial  $\alpha, \omega$ -diethoxy-dimethyl siloxane. Thus, on condensation of methyl phosphinic acid with  $\alpha, \omega$ -diethoxy-dimethyl siloxane, the following compounds have been separated: hexamethyl cyclomethyl phosphinoxy-trisiloxane if  $n = 3$ , and octamethyl cyclomethyl phosphinoxy-tetrasiloxane, if  $n = 4$ . On condensation of methyl phosphinic acid with  $\alpha, \omega$ -diethoxy-dimethyl siloxane, tetramethyl cyclomethyl phosphinoxy-disiloxane is formed if  $n = 2$ . Condensation of methyl phosphinic acid with dimethyl diethoxy silane results in tetramethyl

Card 2/4

25040

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B118/3220

Condensation of methyl phosphinic...

cyclodi (methyl phosphinoxy) disiloxane. On condensation of methyl phosphinic acid with  $\alpha, \omega$ -diethoxy-dimethyl siloxane, the siloxane bond splits to form hexamethyl cyclomethyl phosphinoxy trisiloxane if  $n = 5$ , whereby only a small amount of decamethyl cyclomethyl phosphinoxy-penta-siloxane is separated. The resulting colorless, viscous liquids distillable in vacuo are hydrolyzed already by atmospheric moisture. Infrared absorption spectra (besides the analytical data) were studied to establish the composition and structure of hexamethyl cyclomethyl phosphinoxy-trisiloxane, tetramethyl phosphinoxy-disiloxane, and tetramethyl cyclodi (methyl phosphinoxy)disiloxane. The bands characteristic of the groups:  $\text{CH}_3$ ;  $\text{Si-CH}_3$ ;  $\text{P=O}$ ; and  $\text{Si-O-Si}$  were detected in these spectra. The spectra of hexamethyl cyclomethyl phosphinoxy-trisiloxane, tetramethyl cyclodi(methyl phosphinoxy)disiloxane, tetramethyl cyclomethyl phosphinoxy-disiloxane show absorption bands of the groups  $\text{Si-O-P}$  and  $\text{Si-O-Si}$ . In order to confirm the structure of hexamethyl cyclomethyl phosphinoxy-trisiloxane, tetramethyl cyclomethyl phosphinoxydisiloxane, and tetramethyl di(methyl phosphinoxy)disiloxane, these compounds were submitted to a hydrolytic decomposition. The water destroys the latter according to

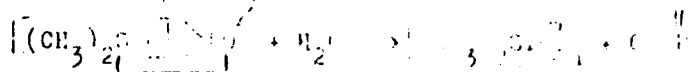
Card 3/4

250°C

S/062/01/006/002/010

Condensation of methyl phosphonates

the following equation:



This hydrolysis reaction is by-product of the synthesis of the compound for taking the infrared spectra of the compounds obtained. There are 3 figures, 3 tables, and 1 non-Soviet bloc reference. The reference to English-language publication reads as follows: P. H. R. J. Amer. Chem. Soc. 71, 2916 (1949)

ASSOCIATION: Institut tankov khitomnoy tekhnologii im. M. V. Lomonosova (Institute of Fine Chemical Technology im. M. V. Lomonosov)

SUBMITTED: July 6, 1960

Card 4/4

S/075/61/016/006/006/006  
B106/B147

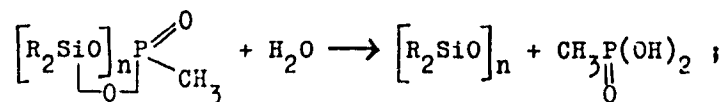
AUTHORS: Andrianov, K. A., Khananashvili, L. M., and Vasil'yeva, T. V.

TITLE: Methods for determining phosphorus in phosphorus silicon-compounds

PERIODICAL: Zhurnal analiticheskoy khimii, v. 16, no. 6, 1961, 738-739

TEXT: The authors suggest a simple method for determining phosphorus in phospho-organosilicon compounds with the structure

$\left[ \begin{array}{c} R_2SiO \\ | \\ O \end{array} \right]_n P \begin{array}{l} \nearrow O \\ \searrow CH_3 \end{array}$ , which is based on their hydrolysis:

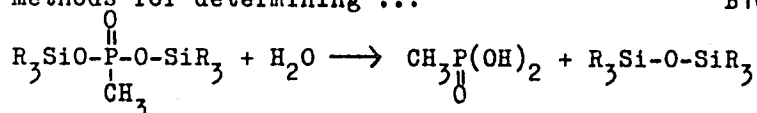


Card 1/4

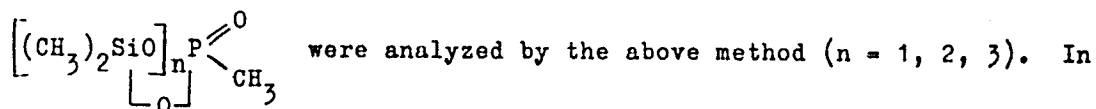


Methods for determining ...

S/075/61/016/006/006/006  
B106/B147



0.2-0.3 g of the substance is dissolved in water and subjected to hydrolysis for 4-5 hr. When heated to 80°C complete hydrolysis is already achieved after 30-40 min. The alkyl phosphinic acid is titrated by analkali 0.1 N in the presence of thymol phthalein (pH 9.4-10.6). Compounds of the general formula



all cases, the results were in good agreement with the results expected from the formula. Deviations of parallel determinations amounted to 0.2-0.3%. There are 2 tables.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: July 6, 1960  
Card 2/1

88484

S/079/61/031/001/018/025  
B001/B066

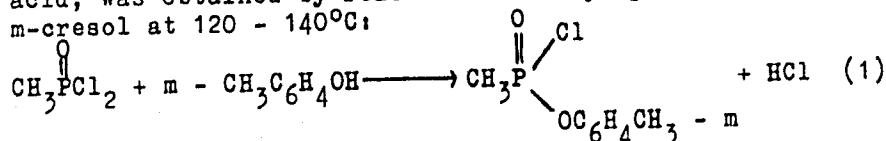
15.8114 2209

AUTHORS: Andrianov, K. A., Zhdanov, A. A., Khanarashvili, L. M., and Shapatin, A. S.

TITLE: Reactions of Aluminum Isopropylate With Some Organo-phosphorus Compounds

PERIODICAL: Zhurnal obshchey khimii, 1961, Vol. 31, No. 1, pp. 224 - 228

TEXT: The authors studied the reaction of aluminum isopropylate with the acid chlorides of methyl-m-cresoxy phosphinic acid and dimethyl phosphinic acid, in order to use them as initial products for the synthesis of polymers with inorganic molecular chains. One of the initial organo-phosphorus compounds, the acid chloride of methyl-m-cresoxy phosphinic acid, was obtained by reaction of methyl phosphinic acid dichloride with m-cresol at 120 - 140°C:



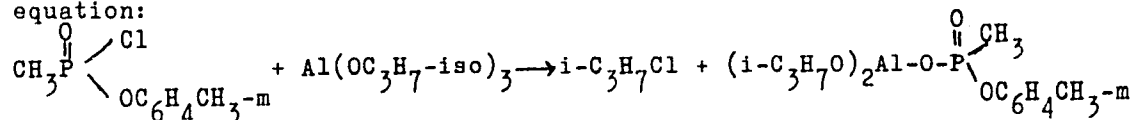
Card 1/3

88484

Reactions of Aluminum Isopropylate With Some  
Organophosphorus Compounds

S/079/61/031/001/018/025  
B001/B066

As by-product, considerable quantities of di-m-cresyl ester of methyl phosphinic acid are formed. Higher excess of the dichloride of methyl phosphinic acid gives a large yield of the chloride of methyl-m-cresoxy phosphinic acid and a low yield of the afore-mentioned by-product. The reaction of the chloride of methyl-m-cresoxy-phosphinic acid with aluminum isopropylate was expected to proceed according to the following equation:



However, in addition to isopropyl chloride, also the isopropyl-m-cresyl ester was separated which is indicative of side reactions. At an elevated reaction temperature (140 - 200°C) still more complicated compounds resulted, which renders the separation of individual reaction products very difficult. To confirm the assumption on the course of reaction, tris(methyl-m-cresoxy-phosphinoxy)aluminum was synthesized. The reaction was carried out at 90 - 100°C to avoid separation of the cresoxy group. Under these conditions, tris(methyl-m-cresoxy-phosphinoxy)aluminum resulted in a yield of 59 %, isopropylchloride in a yield of 67 %, which

Card 2/3

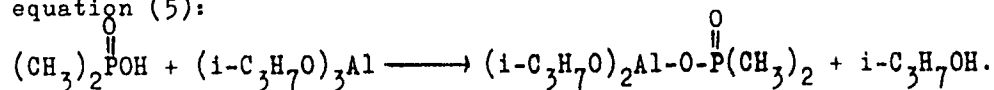
APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721720018-3"

Reactions of Aluminum Isopropylate With Some  
Organophosphorus Compounds

S/079/61/031/001/018/025  
B001/B066

confirmed the predicted course of reaction. The reaction of dimethyl phosphinic acid with aluminum isopropylate takes place according to equation (5):



This is confirmed by a nearly quantitative separation of isopropyl alcohol (99 %). According to ultimate analysis, the product distilling from the reaction mass at 164°C corresponds to dimethyl-phosphinoxy-(diisopropyl) aluminum which is contaminated. The vitreous, colorless product is soluble in common aromatic solvents. G. B. Ravich and I. F. Manucharova are thanked for their cooperation. There are 1 figure and 10 references: 4 Soviet, 2 British, 2 German, and 1 Czechoslovakian.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii  
(Moscow Institute of Fine Chemical Technology)

SUBMITTED: February 20, 1960

Card 3/3

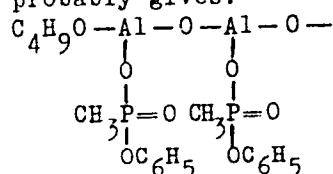


88485

Synthesis of Poly(phenoxy-methyl-phosphinoxy)  
Aluminum Oxanes

S/079/61/031/001/019/025  
B001/B066

Compound (I), hitherto not yet described, was separated in pure condition by distillation of the reaction products (26.2 %). The low yield is due to the formation of compound  $\text{CH}_3\text{PO}(\text{OC}_6\text{H}_5)_2$  and, presumably, of a mixture of condensation products of the organophosphorus compounds present. The yield of butyl chloride was 58 %. The reaction carried out at 80 - 90°C yields phenoxymethyl-phosphinoxy-dibutoxy aluminum (II). Elevated temperatures give compounds insoluble in organic solvents. The viscosity of the product of the hydrolysis of compound (II) rapidly increases. This hydrolysis probably gives:



The increase in viscosity depends on the water quantity applied, it is most pronounced at the beginning reaction. The hydrolysis products separated from the solution are solid compounds soluble in butyl alcohol. A study of the thermo-mechanical properties of the hydrolysis products

reveals that an increase on the water quantity in the above hydrolysis does not affect the flow temperature of the polymer considerably, but somewhat decreases the interval between the temperatures of vitrification

Card 2/3

88485

Synthesis of Poly(phenoxy-methyl-phosphinoxy)  
Aluminum Oxanes

S/079/61/031/001/019/025  
B001/B066

and of flow. Evaporation of the polymer solution on a solid surface gave brittle films. There are 2 figures and 3 references: 2 Soviet and 1 German.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii  
(Moscow Institute of Fine Chemical Technology)

SUBMITTED: February 20, 1960

Card 3/3

S/062/62/000/006/006/008  
B117/B101

AUTHORS: Tsitsishvili, G. V., Bagratishvili, G. D., Andrianov, K. A.,  
Khananashvili, L. M., and Kantariya, M. L.

TITLE: Study of infrared spectra of cyclic organosiloxanes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh  
nauk, no. 6, 1962, 1014 - 1019

TEXT: Infrared spectra of octamethyl cyclotetrasiloxane (I), trimethyl triphenyl cyclotrisiloxane (III), tetramethyl tetraphenyl cyclotetrasiloxane (IV), and 8 cycloorganotetrasiloxanes with methyl, ethyl, ethoxyl, butoxyl, phenyl, vinyl, and nitrile groups were investigated. The infrared spectra of (I), (III), and (IV) agreed with those described in the literature. The spectra of the other 8 cycloorganotetrasiloxanes were obtained for the first time. Stretching vibrations of the Si-O-Si group were determined for all organotetrasiloxanes in the form of broad, very intense 1080-1089  $\text{cm}^{-1}$  bands; the positions of these were constant and scarcely effected by the character and number of the substituents. The corresponding band of the trimers appears at 1020  $\text{cm}^{-1}$  and is less intense. The

Card 1/3

S/062/62/000/006/006/008

B117/B101

Study of infrared spectra ...

bands corresponding to the stretching vibrations of the  $\text{CH}=\text{CH}_2$  group were found for compounds with 1 to 3 vinyl groups at  $1596\text{ cm}^{-1}$ ; they became more intense with increasing number of these groups. The lower frequency of stretching vibrations of the  $\text{C}=\text{C}$  bond is due to the strong effect of the Si atom on the vinyl group. This effect is greater than that of the conjugate phenyl ring, and is commensurable with the effect of conjugate  $\text{C}=\text{C}$  or  $\text{C}=\text{O}$  bonds. The bands of the vinyl group found at  $959$  and  $1006\text{ cm}^{-1}$  originate in uneven deformation vibrations of the  $\text{CH}$  bond in  $-\text{CH}_2$  and  $-\text{CH}$ .

The intensity of these bands grows proportionally with the number of vinyl groups. Bands corresponding to stretching vibrations of the  $\text{Si}-\text{C}_6\text{H}_5$  group were found at  $1434\text{ cm}^{-1}$  for organocyclosiloxanes with phenyl groups. The  $1034\text{ cm}^{-1}$  band ascribed to the  $\text{Si}-\text{C}_6\text{H}_5$  group by L. Spialter, D. S. Priest,

C. W. Harris (J. Amer. Chem. Soc. 77, 6227 (1955)) is masked by the vibrations of the  $\text{Si}-\text{O}-\text{Si}$  group; it appears distinctly in trimers only. Stretching vibrations of the  $\text{Si}-\text{CH}_3$  and  $\text{Si}(\text{CH}_3)_2$  groups were observed in all cyclo-

organosiloxanes in the form of broad bands at  $1258-1263\text{ cm}^{-1}$ . Bands at  $960$  and  $1010\text{ cm}^{-1}$  were found for the ethyl radical bound to silicon corres-

Card 2/3



S/190/62/004/004/015/019  
B117/B138

5.35700  
11.8170  
AUTHORS:

Andrianov, K. A., Khananashvili, L. M., Belen'kaya, I. S.

TITLE:

Synthesis and polymerization of dimethyl cyclosiloxanes with silsesquioxane bonds

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, v. 4, no. 4, 1962, 591-595

TEXT:

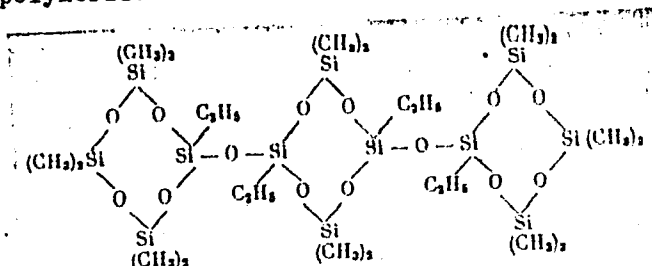
Bi- and tricyclic compounds of the dimethyl siloxane series with

silsesquioxane bonds  $-O-Si \begin{matrix} \diagup O- \\ \diagdown O- \end{matrix}$  were obtained by hydrolysis and con-

densation of hexamethyl ethyl cyclotetrasiloxane and tetramethyl diethyl cyclotetrasiloxane. The hydrolysis of the hydrogen-containing cyclotetra-siloxanes synthesized by the method described in Ref. 3 (N. N. Sokolov, Zh. obshchey khimii, 29, 248, 1959) was carried out in alkaline medium (caustic soda) at room temperature, and the condensation in acid medium (caustic acid, pH 5) at 40-45°C. The following substances were obtained: bis-(hexamethyl ethyl cyclotetrasiloxanyl)oxide (I)  $(Si_8C_{16}H_{46}O_9)$ , boiling point 135-147°C/1-2 mm HG) and a tricyclic compound (II) with the structure:

S/190/62/004/004/015/019  
B117/B138

Synthesis and polymerization...



( $\text{Si}_{12}\text{C}_{24}\text{H}_{68}\text{O}_{14}$ , boiling point  $240-250^{\circ}\text{C}/2 \cdot 10^{-2}$  mm Hg). Both compounds are readily soluble in benzene, toluene and ethyl alcohol. They easily polymerize at room temperature (in toluene solution in the presence of 0.3% KOH), (I) producing an insoluble polymer after 93 hr and (II) after 20.5 hr. The reactivity increases with a higher number of silsesquioxane links in the chain. The stronger reactivity of silsesquioxane bonds as compared with siloxane bonds is probably connected with the fact that the silicon atom bonded with three oxygen atoms is more electropositive and the attack of these bonds gets more effective during the action of nucleophilic reagents. There are 2 figures and 1 table.

Card 2/3

37437

S/190/62/004/005/013/026  
B110/B108

15.9205

AUTHORS: Andrianov, K. A., Vasil'yeva, T. V., Khananashvili, L. M.

TITLE: Polymerization of dimethyl cyclomethyl phosphinoxysiloxanes

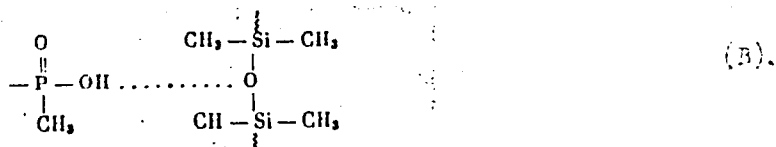
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 5, 1962, 708 - 713

TEXT: An attempt was made to polymerize inorganic cycles containing silicon, oxygen, and phosphorus, and to copolymerize them with octamethyl cyclotetrasiloxane. Tetramethyl cyclomethyl phosphinoxydisiloxane and hexamethyl cyclomethyl phosphinoxytrisiloxane were polymerized with  $H_2SO_4$ , dichloroanhydride of methyl phosphinic acid, tin chloride, and KOH. The slight increase in viscosity indicated that polymerization was very poor. The thermal copolymerization of octamethyl cyclotetrasiloxane with tetramethyl cyclodi(methylphosphinoxy)disiloxane proceeded slowly while forming low-molecular products. In addition, the copolymerization of octamethyl cyclotetrasiloxane with tetramethyl cyclomethyl phosphinoxydisiloxane or tetramethyl cyclodi(methylphosphinoxy)disiloxane was studied at Si:P ratios of 6:1, 21:1, 42:1, 101:1, 201:1, and 301:1 in the presence of water. The amounts of water were sufficient for the hydrolysis of  
Card (1/3)

Polymerization of dimethyl ....

S/190/62/004/005/013/026  
B110/B108

dimethyl cyclomethyl phosphinoxysiloxane. Two of the resultant polymers were liquid, and three were elastomers with  $[\eta]$  equal to 0.100, 0.202, 0.448 and with molecular weights of 12,590; 37,150; 125,900, respectively. At a ratio of Si to P = 21:1 and at a temperature of 100°C, polymerization takes place within the first six hours. At Si:P = 42:1, the rate of polymerization is temperature-dependent. The resulting transparent polymers, which are soluble in organic compounds, become dull, insoluble, and elastic on standing in air. The structuralization, which is irreversible after 60 min, is attributed to the formation of a hydrogen bond:



A built-up system is formed if the polymer chain contains several methyl phosphine groups. The resultant intermolecular forces cannot be removed even by boiling in polar solvents for 30 hrs. The structuralized polymer exhibits an infrared absorption band at 1600 - 1700  $\text{cm}^{-1}$ . A study of the Card 2/3

ANDRIANOV, K.A.; KHANANASHVILI, L.M.; BELEN'KAYA, I.S.

Synthesis and polymerization of dimethylcyclsiloxanes with  
silsesquioxanic bonds. Vysokom.soed. 4 no.4:591-595 Ap '62.

(MIRA 15:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.

(Silicon organic compounds)

(Polymerization)

S/079/62/032/010/008/008  
D214/D307

AUTHORS: Andrianov, K.A., Khayduk, Ionel, Khananashvili, L.M.,  
and Nekhayeva, N.I.

TITLE: The synthesis of dimethylcyclasilthioxanes

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 10, 1962, 3447

TEXT: A description of the synthesis of two examples of a hitherto unknown class of compounds: cyclasilthioxanes. The treatment of 1,3-dichlorotetramethyldisiloxane with  $H_2S$  in the presence of pyridine gave a crystalline compound (b. range  $116-122^{\circ}C/2$  mm Hg; m.p.  $38-42^{\circ}C$ ). From the quantitative analysis of this compound and from ir, which showed the presence of Si-O-Si, Si-S-Si and Si- $CH_3$  bonds, the structure was found to be  $(CH_3)_2 \text{Si} O \text{Si} (CH_3)_2 S \text{Si} (CH_3)_2 O \text{Si} (CH_3)_2 S$ . Under similar conditions 1,5-dichloro-hexamethyltrisiloxane gave a colorless, transparent liquid (b. range  $170-172.5^{\circ}C$ ) the structure of which was shown to be  $(CH_3)_2 \text{Si} O \text{Si} (CH_3)_2 S \text{Si} (CH_3)_2 O$ .

Card 1/2

The synthesis of ...

S/079/62/032/010/008/008  
D214/D307

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii  
imeni M.V. Lomonosova (Moscow Institute of Fine Chemi-  
cal Technology imeni M.V. Lomonosov)

SUBMITTED: May 20, 1962

Card 2/2

TSITSISHVILI, G.V.; BAGRATISHVILI, G.D.; ANDRIANOV, K.A.; KHANANASHVILI,  
L.M.; KANTARIYA, M.L.

Infrared spectra of cyclic organosiloxanes. Izv.AN SSSR.Otd.-  
khim.nauk no.6:1014-1019 '62. (MIRA 15:8)

1. Institut khimii im. P.G.Melikishvili AN Gruzinskoy SSR i  
Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.  
(Silicon organic compounds--Spectra)



TSITSISHVILI, G.V.; BAGRATISHVILI, G.D.; ANDRIANOV, K.A.; KHANANASHVILI, L.M.;  
KANTARIYA, M.L.

Infrared spectra of cyclic organosilazanes. Izv.AN SSSR.Otd.khim.  
nauk no.7:1197-1198 JI '62. (MIRA 15:7)

1. Institut khimii im. P.G.Milikishvili AN Gruzinskoy SSR i  
Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.  
(Silazanes—Spectra)

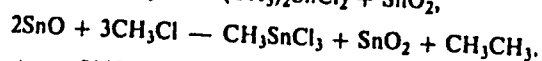
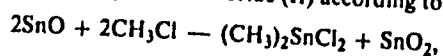
S/079/62/032/007/005/007  
1032/1232

AUTHORS: Andriyanov, K. A., Vasil'yeva T. V., Nudelman Z. N., Khananashvili, L. M., Kochetkova, A. C. and Cherednikova, A. G.

TITLE: Dimethyl-tin-dichloride; its synthesis and a study of its reaction with disodium salts of dimethyl-siloxanes.

PERIODICAL: Zhurnal obshchei khimii, v. 32, no. 7, 1962, 2307-2311

TEXT: Reaction of methyl chloride with stannous chloride in the presence of spongy metallic copper gives dimethyl-tin-dichloride (I) and methyl-tin-trichloride (II) according to the scheme



The reaction takes place between 250° and 350°C; the yield of the process and the ratio between I and II in the reaction product are temperature dependent. At 250°C mainly dimethyl-tin-dichloride is formed. The reaction of dimethyl tin-dichlorides and diethyl-tin-dichlorides with disodium salts of dimethyl-siloxanes gives polymer products the molecular weight of which exceeds 3000. There is 1 figure and 3 tables. The English-language reference [8] reads: E. Rochow, Smith, J. Am. Chem. Soc., 75. 4103 (1953).

SUBMITTED: July 5, 1961

Card 1/1

ANDRIANOV, K.A.; KHAYDUK, Ionel; KHANANASHVILI, L.M.; NEKHAYEVA, N.I.

Synthesis of dimethylcyclasilthioxane. Zhur.ob.khim.  
32 no.10:3447 0 '62. (MIRA 15:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii  
imeni M.V. Lomonosova.  
(Silicon organic compounds)  
(Oxathiane)

ANDRIANOV, K.A.; TIKHONOV, V.S.; KHANANASHVILI, L.M.; KHAN' EN'-TSZE  
[Han En-tsâ]; KHAN' SHU-YUY [Han Shu-yu]

Hydrolytic stability of polyorganoborosiloxanes. Plast. massy  
no.12:25-27 '62. (MIRA 16:1)  
(Siloxanes) (Boron organic compounds) (Hydrolysis)

ANDRIANOV, K.A.; VASIL'YEVA, T.V.; NUDEL'MAN, Z.N.; KHANANASHVILI, L.M.;  
KOCHETKOVA, A.S.; CHEREDNIKOVA, A.G.

Preparation of dimethyl tin dichloride and study of its reaction  
with disodium salts of dimethylsiloxanes. Zhur.ob.khim. 32  
no.7:2307-2311 J1 '62. (MIRA 15:7)  
(Tin organic compounds) (Siloxanes)

ANDRIANOV, K. A.; KHANANASHVILI, L. M.; KHAN' EN'-TSZE[Han En-tse];  
TIKHONOV, V. S.

Reaction of dimethyldichlorosilane with iron oxide. Zhur. ob.  
khim. 32 no.12:3951-3952 D '62. (MIRA 16:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
M. V. Lomonosova.

(Silane) (Iron oxides)

1. Synthesis of polydimethylsiloxanes and siliconorganic polyurethanes with a

2. Synthesis of polydimethylsiloxanes and siliconorganic polyurethanes with a

3. Synthesis of polydimethylsiloxanes and siliconorganic polyurethanes with a

4. Synthesis of polydimethylsiloxanes and siliconorganic polyurethanes with a

5. Synthesis of polydimethylsiloxanes and siliconorganic polyurethanes with a

14-00000

ACCESSION NR: AT4033980

Physical properties of these compounds were then investigated. By condensation of  
a series of the dimethylsiloxane series with phenylmethyl dihalogen silane



1-165

EXPRESSION NR AT4033980

ENCLOSURE 01

b	Compound	Formula	n <sub>D</sub> <sup>20</sup>	d <sub>4</sub> <sup>20</sup>	M <sub>w</sub> D	
					Experi-	cal
					ment a	1.2 a-
	tetrakis-(octamethyl-)					
	siloxano-9-					
	siloxano-9-					
	tetrakis-(hexa-					
	siloxano-17-hydroxy)					
	siloxano-17-hydroxy)					
	48-hydroxy)silane	$\text{Si}(\text{O}-\text{Si})_4\text{OH}$	1.4053	0.9703	1798.2	1797.4
	tetrakis-(ethyleneglycoxy)silane	$\text{Si}(\text{OCH}_2\text{CH}_2\text{OH})_4$	1.4536	1.2642	58.50	58.04
	tetrakis-(diethylglycoxy)silane	$\text{Si}(\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH})_4$	1.4640	1.2140	101.78	102.38
	phenyl-tris-(ethyleneglycoxy)silane	$\text{C}_6\text{H}_5\text{Si}(\text{OCH}_2\text{CH}_2\text{OH})_3$	1.5045	1.2101	70.60	71.05

Card 3/3

ANDRIANOV, K.A.; KHANANASHVILI, L.M.; TIKHONOV, V.S.;  
KHAN'-SHU-YUY [Han Shu-yü]; KHAN'-EN'-TSZE [Han En-tsê]

Polyorganoborosiloxanes. Plast.massy no.1:21-25 '63. (MIRA 16:2)  
(Boron organic compounds)  
(Polymers) (Siloxanes)

L 17063-63 EWP(j)/EPF(c)/EWT(m)/BDS  
ASD Pc-4/Pr-4 RM/WW

S/062/63/000/004/009/022

AUTHOR: Andrianov, K. A., Klimova, M. I., Khananashvili, L. M., and Sipyagina, M. A. 16

TITLE: On the condensation of  $\alpha, \omega$ -dihydroxymethylsiloxanes with 1, 3-diaceto-1, 3-dimethyl-1, 3-diphenyldisiloxane 65

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 4, 1963, 651-654

TEXT: The synthesis of linear polymers by the reaction of polycondensation of oligomers of the dimethylsiloxane type with the hydroxyl groups at the end of chains with oligomers containing the acetate groups, for example, 1, 3-diacetoxy-1, 3-dimethyl-1, 3-diphenyldisiloxane was of interest to the authors. The reaction of alpha, omega-dichloromethylphenylsiloxanes with acetic anhydride was studied and several alpha, omega-diacetoxymethylphenylsiloxanes were synthesized. The condensation between alpha, omega-dihydroxyoctamethyltetrasiloxane and 1,3-diacetoxy-1, 3-diphenyldisiloxane was conducted. The polymer formed has a higher vitrification temperature ( $-55^{\circ}$ ) than the polymer based on

Card 1/2

S/062/63/000/004/009/022

On the condensation of .....

heptamethylphenylcyclotetrasiloxane ( $-70^{\circ}$ ). There are 2 figures. The 2 English-language references read as follows: W. H. Davdt, J. F. Hyde, J. Amer. Chem. Soc., 74, 386 (1952); P. George, L. Sommer, F. Whitmore, J. Amer. Chem. Soc., 75, 1585 (1953).

ASSOCIATION: Institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova  
(Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: June 15, 1962

Card 2/2

ACCESSION NR: AP3000133

S/0062/63/000/005/0948/0950

AUTHOR: Andrianov, K. A.; Khayduk, Ionel; Khananashvili, L. M.; Lotarev, M. B.

TITLE: Synthesis of vinyl derivatives of cyclosilazanes

SOURCE: AN SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 5, 1963, 948-950

TOPIC TAGS: silazanes, silanes, vinyl derivatives, coammonolysis

ABSTRACT: Trimethyltrivinylcyclotrisilazane and tetramethyltetravinylcyclotetra-silazane were obtained by reacting methylvinylchlorosilane with gaseous ammonia in benzene. Coammonolysis of methylvinylchlorosilane with dimethyldichlorosilane yielded two six-membered cyclic derivatives and one eight-membered cyclic derivative. Coammonolysis of methylvinylchlorosilane with diethyldichlorosilane resulted in the formation of six-membered cyclic derivatives only. The seven synthesized compounds were identified by means of elemental analysis and through determination of molecular weights, molar refractive indices and infrared spectra. Physical constants of the seven compounds are summarized in a table. Orig. art. has: 5 formulas and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)  
Card 1/2

ACCESSION NR: AP3000133

SUBMITTED: 29Dec62

SUB CODE: CH

DATE ACQ: 12Jun63

NO REF SOV: 001

ENCL: 00

OTHER: 003

Card 2/2

L 11062-63

EPF(c)/FWP(j)/FWP(q)/FWT(m)/BDS--AFPTC/ASD--Pr-I<sub>1</sub>/Pc-I<sub>1</sub>--RM/MAY/  
ACCESSION NR: AP3001449 WW/JD/JG S/0074/63/032/005/0539/0589

AUTHOR: Andrianov, K. A.; Khayduk, I.; Khananashvili, L. M.

TITLE: Inorganic cyclic silicon compounds and their organic derivatives

SOURCE: Uspekhi khimii, v. 32, no. 5, 1963, 539-589

TOPIC TAGS: heterocyclic, functional silica group reaction, homofunctional condensation reaction, heterofunctional condensation reaction, reaction of siloxane bond rupture, organic radical, separation reaction, the silica atom; mixed cyclic silicon compounds, polycyclic compounds, polymers.

ABSTRACT: This article summarizes the works dedicated to the chemistry of inorganic cyclic silicon compounds including the works of 1962. For the convenience of study, these compounds were broken into homocyclic compounds composed of silica atoms only of the formula -  $[R_{sub 2} Si]_{sub n}$ . This group includes cyclotetrasilanes and cyclohexasilanes. Cyclohexasilanes are more stable than cyclotetrasilanes since the stress on the ring of the first is smaller. Heterocyclic compounds have heteroatoms of O, N, S, and Se in place of silica atoms. Mixed cycles are obtained when a portion of the conjugated silica atoms are replaced with P, B, or others. Cycles containing conjugated atoms of O, N, and S are more stable than homogeneous cycles since the later has lower electronega-

Card 1/4

L 11062-63

ACCESSION NR: AP3001449

1

tivity. Cyclosiloxanes have a general formula  $[R \text{ sub } 2 \text{ SiO}] \text{ sub } n$  and contain from 3 to 12 SiO groups per cycle. After the formation of the cycle, the free valences of silica can be replaced with inorganic groups ( $R = \text{Cl, Be, OH or } \text{--O sup } (-) \text{ )$ , or organic groups ( $R = \text{aryl, alkyl}$ ), or other functional groups. The inorganic cyclosilicates are found in the anionic forms of  $\text{Si sub } 3 \text{ O sub } 9 \text{ sup } 6\text{--}$ ,  $\text{SiO sub } 12 \text{ sup } 8\text{--}$ , and  $\text{Si sub } 6 \text{ O sub } 18 \text{ sup } 12\text{--}$ . The organic cyclosilanes containing two organic radicals attached directly to the silica atom can be prepared by the following reactions: functional silica group reaction with substances capable of giving off oxygen (water, alcohols, ketones, ethers, metal oxides, etc.). The most important method in this reaction is the hydrolysis of functional silica groups. Homofunctional condensation reaction is promoted by heating, pressure, and catalytic reaction of acids or bases. Heterofunctional condensation reaction is promoted by heating in the presence of Friedel-Crafts catalyst reaction. The reaction of siloxane bond rupture and the reaction of separation of the organic radical from the silica atom are also discussed. A great number of references are included covering the structure and physical and chemical properties of organocyclosiloxanes. A detailed illustration of the following reactions are also presented: rupture of cycles, formation of oligomers, telomers, regrouping, formation of polymers, electrophilic reagents, co-polymerization of cycles, and chemical transformation in the organic radical. Cyclosiloxanes containing SiN bonds in the cycle are presently found in 2, 3, or 4 SiN groups. Organocyclic silazanes are stable at high

Card 2/4



L 11062-63

ACCESSION NR: AP3001449

temperatures; however, they hydrolyze in water. Cyclosilthianes contain 2, 3, or 4 SiS groups and have 4-, 6-, and 8- group cycles. Cyclosilselanes in its cycles contained silica and selenium. At the present only two products are known, a dimer and a trimer with a cyclic structure. Both compounds are unstable. The mixed cyclic silicon compounds are transitional compounds between organocyclicsiloxanes and other inorganic cycles. The oxygen in the cycle can be partly substituted by N, S, and from cyclosilazoxanes and cyclosilthioxanes. Silica can be partly substituted by B, Al, P, Ti, Ar, and Sb forming mixed organocycloelemental-siloxanes. All these reactions are illustrated in the original article and their physical and chemical properties explained. Polycyclic compounds of silica are also classified into homo- and hetero- compounds. Thus the cyclic silica structures of inorganic elements present a number of specific properties sharply distinguished from the cyclic organic compounds. The high reactivity of the inorganic cyclic compounds containing silica in relation to nucleophilic and electrophilic reagents is typical for all cyclic compounds. This distinguishes them from the organic carbocyclic compounds and opens a great possibility for their utilization in various syntheses of polymers. Orig. art. has: 0 figures, 0 tables and 0 graphs.

ASSOCIATION: none

Card 3/4

I. 10663-63

EFF(c)/EMF(j)/EXT(m)/BDS--ASU--Pr-4/Pc-4--RM/WW/MAY 69  
S/079/63/033/004/008/01C 68

AUTHOR: Andrianov, K.A., Kurakov, G.A., Khananashvili, L.M.,  
Lomonosova, T.A.

TITLE: Reaction of reamination of bis(diethylamino)-  
derivative silanes and octamethylcyclotetrasilazane  
with aromatic amines ¶

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 4, 1963,  
1294-1299

TEXT: The compounds of bis(diethylamino)methylsilane,  
bis(diethylamino)ethylsilane, diethylaminophenylaminoethylsilane,  
and bis(phenylamino)ethylsilane, of which the first two have not  
been described previously in published literature, are synthesized.  
These compounds are liquids which evaporate in a vacuum without  
decomposing and are easily hydrolyzed in air. They react with  
benzidine to form polymers which are solids at room temperature.

Card 1/2

L 10663-63


S/079/63/033/004/008/010 /

Reaction of reamination of...

The properties of these polymers are studied and are given in a table. It is shown that the reamination of bis(diethylamino)-ethylsilane by aniline takes place without the displacement of a hydrogen atom from the silicon to the amino group.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii  
imeni M.V. Lomonosova (Moscow Institute of  
Fine Chemical Technology imeni M.V. Lomonosov)

SUBMITTED: May 29, 1962

kes/   
Card 2/2

ANDRJANOV, K.A.; KURAKOV, G.A.; KHANANASHVILI, L.M.

Interaction of glycidic ethers of phenols with organochlorosilanes.  
Zhur. ob. khim. 33 no.8:2634-2638 Ag '63. (MIRA 16:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.

L 17156-63

ENP(j)/EFF(c)/ENT(m)/BDS ASD Pc-4/Pr-4 RM/MS/MAY 67

ACCESSION NR: AP3006831

S/0079/63/033/008/2790/2791 66

AUTHOR: Andrianov, K. A.; Khayduk, Ionel; Khananashvili, L. M.

TITLE: New inorganic heterocyclic compound trisildiazoxane

SOURCE: Zhurnal obshchey khimii, v. 33, no. 8, 1963, 2790-2791

TOPIC TAGS: heterocyclic compounds, inorganic heterocyclic compounds, trisildiazoxanes, 3,5-diaza-1-oxacyclohexasilane, trisildiazoxane synthesis, synthesis, ammonolysis, dichlorotetramethylsiloxane, dichlorodimethylsilane, 2,4,6-hexamethyl-3,5-diaza-1-oxacyclohexasilane, 2,4,6-hexamethyl-3,5-diaza-1-oxacyclohexasilane property, property

ABSTRACT: 2,4,6-Hexamethyl-3,5-diaza-1-oxacyclohexasilane (I), the first representative of a new class of inorganic heterocyclic compounds — trisildiazoxanes [sic] — has been synthesized by ammonolysis of dichlorotetramethylsiloxane (II) with dichlorodimethylsilane (III) in liquid ammonia. An equimolar mixture of II and III dissolved in toluene was added dropwise to liquid ammonia. After

Card 1/2

L 17156-63

ACCESSION NR: AP3006831

completion of the reaction excess ammonia and toluene were removed by heating and distillation, respectively. Compound I precipitated from the reaction mixture as needle-shaped colorless crystals which, after recrystallization from petroleum ether, had a melting point of 46—47C. The yield of I was 28.9%. Other 3,5-diaza-1-oxacyclohexasilane derivatives are being prepared. Orig. art. has: 1 formula.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 15Mar63

DATE ACQ: 30Sep63

ENCL: 00

SUB CODE: CH

NO REF SOV: 001

OTHER: 001

Card 2/2

L 12709-63 EWP(j)/EPF(c)/EWT(m)/SDS ASD/ESD-3 Pc-4/Pr-4 RM/WW/MAY

ACCESSION NR: AP3000299

S/0020/63/150/001/0093/0095

AUTHOR: Andrianov, K. A. (Corresponding Member, AN SSSR); Khayduk, Ionel; 69  
Khananashvili, L. M. 67

TITLE: Structure of unsaturated derivatives of cyclotrisilazane

SOURCE: AN SSSR. Doklady, v. 150, no. 1, 1963, 93-95

TOPIC TAGS: silanes, silazanes, coammonolysis, conjugation, ammonolysis

ABSTRACT: Unsaturated derivatives of trisilazane heterocycle were prepared for the first time through ammonolysis of methylvinylchlorosilane or coammonolysis of methylvinylchlorosilane with dimethyldichlorosilane in benzene. Trimethyl-tri-vinylcyclotrisilazane and tetramethyltetravinylcyclotetrasilazane were isolated upon ammonolysis of methylvinylchlorosilane. Coammonolysis of dimethyldichlorosilane with methylvinylchlorosilane yielded pentamethylvinylcyclotrisilazane and tetramethyldivinylcyclotrisilazane. Physical properties of the four compounds are summarized in a table. Elemental analysis and molecular weight determinations confirmed the composition of the synthesized compounds. Infrared and ultraviolet spectra provided additional information about the structure of unsaturated derivatives of cyclotrisilazane. Author concluded on the basis of ultraviolet spectra that there is no conjugation of the vinyl groups through the inorganic heterocycle Si

Card 1/2

L 12709-63

ACCESSION NR: AP3000299

sub 3 N sub 3 but the conjugation is outside the nucleus and limited to interaction between the silicon atom and the vinyl group. Orig. art. has: 2 figures, 1 formula and 3 tables. 2

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 06Feb63

DATE ACQ: 10Jun63

ENCL: 00

SUB CODE: CH

NO REF SOV: 003

OTHER: 002

Card 2/2



ANDRIANOV, K.A.; MARFENKOVA, G.P.; KHANANASHVILI, L.M.; SHAPATIN, A.S.

Synthesis of organophosphinoxaluminodimethylsiloxane  
elastomers. Vysokom. soed. 5 no.10:1552-1557 0 '63.

(MIRA 17:1)

1. Institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

ANDRIANOV, K.A.; KHAYDUK, Ionel; KHANANASHVILI, L.M.

New eight-membered cyclosilazoxanes. Izv. AN SSSR. Ser.khim.  
no.9:1701-1702 S '63. (MIRA 16:9)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.  
(Silicon organic compounds)

ACCESSION NR: AP4018161

S/0191/64/000/003/0020/0022

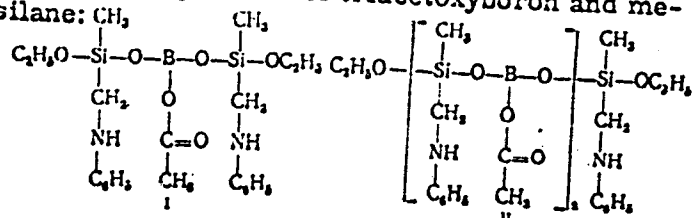
AUTHOR: Andrianov, K. A.; Khananashvili, L. M.; Varlamov, A. V.;  
Tikhonov, V. S.

TITLE: Synthesis of borosiloxane oligomers and their stability to hydrolysis

SOURCE: Plasticheskiye massy\*, no. 3, 1964, 20-22

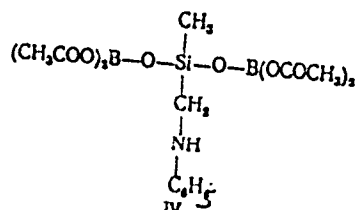
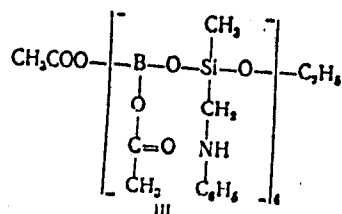
TOPIC TAGS: borosiloxane, oligomer, borosiloxane oligomer, hydrolytic stability, hydrolysis, phenylaminomethyl group

ABSTRACT: Borosiloxane oligomers containing phenylaminomethyl group at the Si atom were synthesized from suitable proportions of triacetoxymethylphenylaminomethyldiethoxysilane:



Card 1/2

ACCESSION NR: AP4018161



The oligomers in which the number of phenylaminomethyl groups is equal to the number of B atoms in the molecule (compound III) or are greater than the number of B atoms (I and II) are stable to hydrolysis; the oligomer in which the number of B atoms exceeds the number of phenylaminomethyl groups (IV) is hydrolytically unstable. "Han En-tse took part in the experimental work".

Orig. art. has: 1 table, 1 figure and 4 formulae.

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: CH

DATE ACQ: 27Mar64

NO REF GOV: 002

ENCL: 00

OTHER: 001

Card 2/2

ACCESSION NR: AP4043319

S/0191/64/000/008/0013/0016

AUTHOR: Andrianov, K. A.; Khananashvili, L. M.; Kochetkov, A. S.

TITLE: Synthesis and condensation of organo(hydroxyalkoxy)silanes

SOURCE: Plasticheskiye massy\*, no. 8, 1964, 13-16

TOPIC TAGS: silane, organotris(hydroxyalkoxy)silane, transesterification

ABSTRACT: A study has been made of the synthesis, properties, and polycondensation of the following organotris(hydroxyalkoxy)silanes: methyl-, ethyl-, or phenyl-tris(2-hydroxyethoxy)silane, or ethyl- or phenyl-tris(4-hydroxybutoxy)silane. These silanes were prepared by transesterification of methyl-, ethyl-, or phenyl-tris(ethoxy)silane with the appropriate glycol. The organotris(hydroxyalkoxy)silanes can be polycondensed alone to the polymers or with dimethyl terephthalate or tolylene diisocyanate to the copolymers. The preparative conditions, chemical structure, and some physical, thermomechanical, and electrical properties of the polymers and copolymers are discussed. For example, the polymer produced from

Card 1/2

ACCESSION NR: AP4043319

phenyltris(4-hydroxybutoxy)silane will not flow at temperatures below 300C. The polymers and copolymers can be cast in molds to produce various articles. Orig. art. has: 4 figures, 4 formulas, and 3 tables.

ASSOCIATION: none

SUBMITTED: 00

ATD PRESS: 3080

ENCL: 00

SUB CODE: IC, GC

NO REF SOV: 001

OTHER: 001

Card 2/2

ANDRIANOV, K.A.; KURAKOV, G.A.; KHANANASHVILI, L.M.

Reaction of 1,3-dioxolane with organochlorosilanes. Izv. AN  
SSSR Ser. khim. no.12:2243-2245 D '64 (MIRA 18:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.

ACCESSION NR: AP4022962

8/0079/64/034/003/0912/0914

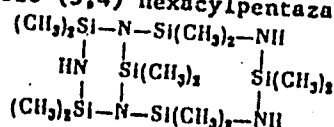
AUTHOR: Andrianov, K. A.; Khayduk, Ionel; Khananashvili, L. M.

TITLE: The formation of polycyclosilazanes during ammonolysis of dimethyldichlorosilane

SOURCE: Zhurnal obshchey khimii, v. 34, no. 3, 1964, 912-914

TOPIC TAGS: polycyclosilazane, ammonolysis, dimethyldichlorosilane, dodecane methylbicyclo 3comma4 hexacyclopentazane, diaminosilazane

ABSTRACT: Dodecane methylbicyclo (3,4) hexacyclopentazane and the polymer



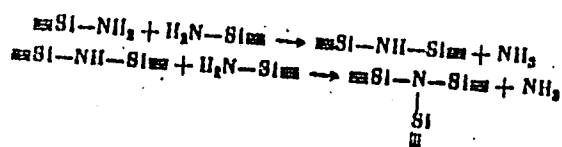
together with hexamethylcyclotrisilazane and octamethylcyclotetrasilazane were obtained while carrying out the reaction of dimethyldichlorosilane with ammonia in benzene solution at a temperature not exceeding 30 C. A study of this reaction indicated that the composition of ammonolysis products depends on the operating

Card 1/4



ACCESSION NR: AP4022962

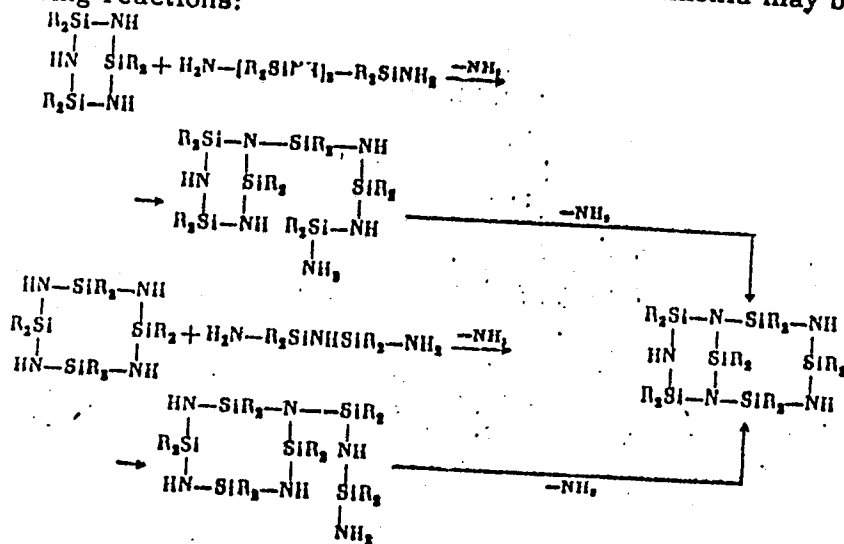
conditions of the synthesis. If the reaction is carried out with subsequent heating of products and no separation of ammonium chloride, a bicyclic compound with low yield forms. If the product of ammonolysis is heated after separation of ammonium chloride, the yield of the bicyclic compound and the polymer increases significantly. It is interesting to note that ammonia separation is observed in the process of heating the product of the dimethyldichlorosilane ammonolysis reaction. While the gaseous ammonia takes effect on the dimethyldichlorosilane, the reaction occurs not only with monocyclic compounds forming, but also with linear diaminosilazanes  $H_2N-(R_2SiNH)_n-R_2Si-NH_2$ . The latter are much more likely to form in conditions of low temperature ammonolysis. This confirms the fact that during heating of products of ammonolysis, ammonia is always separated. This can develop only as a result of condensation of the amino groups in the silicon atoms or as a result of transamination:



Card 2/4

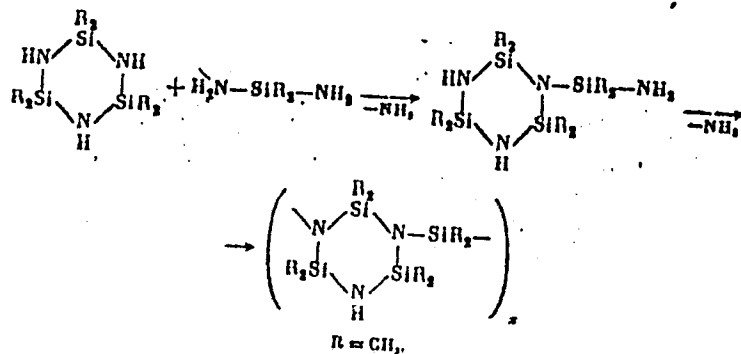
ACCESSION NR: AP4022962

Consequently, the formation of a bicyclic compound and of polymers obtained during the reaction of dimethyldichlorosilane with ammonia may be explained by the following reactions:



Card 3/4

ACCESSION NR: AP4022962



The composition of the polymer being formed does not correspond to the product of simple ammonolysis  $[R_2SiNH]_x$  as might be expected. Its composition  $[R_8Si_4N_3H]_x$  indicates that it is a product of conversion which occurs in the second stage of the reaction. Orig. art. has: 00

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 04Jan63

DATE ACQ: 15Apr64

ENCL: 00

SUB CODE: GC

NO REF SOV: 001

OTHER: 002

Card 4/4

ACCESSION NR: AP4037060

S70079/64/034/005/1684/1685

AUTHOR: Andrianov, K. A.; Kurakov, G. A.; Kopylov, V. M.;  
Khananashvili, L. M.

TITLE: New synthesis method for methylbromosilanes and methylbromo-  
chlorosilanes

SOURCE: Zhurnal obshchey khimii, v. 34, no. 5, 1964, 1684-1685

TOPIC TAGS: methylbromosilane, methylbromochlorosilane, trimethylbro-  
mosilane, dimethylchlorobromosilane

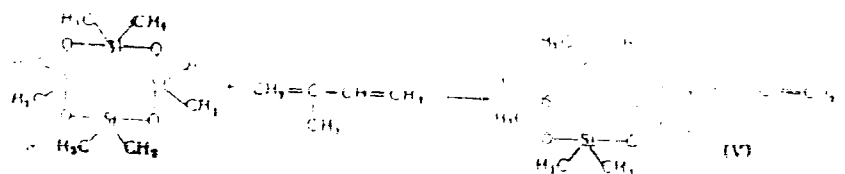
ABSTRACT: Trimethylbromosilane and dimethylchlorobromosilane have  
been prepared by treatment of trimethylchlorosilane or dimethyl-  
dichlorosilane with hydrogen bromide in the presence of anhydrous  
FeCl<sub>3</sub> or iron filings. Either HBr gas or HBr generated by the  
reaction of bromine with naphthalene or tetralene can be used.  
Boiling points of the products are 79-80C and 93-94C, respectively.  
This work was done at the Moscow Institute of Fine Chemical Technology.

Card 1/2





addition of isoprene to heptamethylcyclotetrasiloxane



compounds were identified by mass spectrometry, infrared spectroscopy, and elemental analysis.

The reaction was carried out in a glass tube at 100°C. The reaction mixture was collected in a cold trap and then analyzed by gas chromatography-mass spectrometry (GC-MS). The main product was identified as 1,1,1,2,2,3,3,4,4,4-decamethyl-1,2,3,4-tetrahydro-1,2,3,4-tetrasiloxane.

The reaction was carried out in a glass tube at 100°C. The reaction mixture was collected in a cold trap and then analyzed by gas chromatography-mass spectrometry (GC-MS). The main product was identified as 1,1,1,2,2,3,3,4,4,4-decamethyl-1,2,3,4-tetrahydro-1,2,3,4-tetrasiloxane.

va Moscow Institute of Fine Chemicals





L 24827-65  
ACCESSION NR: AP4047325

2

N-phenylaziridinyl derivatives, probably via the triazoline intermediate. Compounds with the alkenyl group in the beta-position with respect to the silicon atom, e.g., allylheptamethylcyclotrisiloxane, do not react with methanol or water, thus further confirming that in such compounds the vinyl group alpha to the Si atom is more reactive than the one in the beta position. It reacted with cyclopentadiene-1,3 to form 3-(cyclohexenyl)-3-(heptamethylcyclotrisiloxy)-1,2,4-triazoline. Molecular weights and molar refractions were determined. NMR spectra were obtained for all the compounds. The NMR spectrum of 3-(4-allylphenyl)-heptamethyltri-siloxane was obtained. "The authors sincerely thank V. I. Zaitsev for obtaining the IR absorption spectra." Orig. art. has 4 equations and 9 formulae.

ASSOCIATION: Moskovskiy Institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

RECEIVED: 18 May 64

ENCLOSURE

SUB CODE: GC, OC

NO REF SOV: 001

OTHER: 001

ANDRIANOV, K.A.; KHAYDUK, Y.; KHANASHVILI, L.M.

Ease of the elements of forming polymers with inorganic chains  
of molecules. Usp. khim. 34 no.1:27-43 Ja '65.

(MIRA 18:4)

L. Moskovskiy institut tonkey khimicheskoy tekhnologii imeni  
Lomonosova.

L 29105-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 pr

ACCESSION NR: AP5003962

S/0079/65/035/001/0103/0106

AUTHORS: Andrianov, K. A.; Sidorov, V. I.; Knaparasi, L. M.; Nikitina, N. N.

TITLE: Synthesis of organic cyclosiloxanes containing unsaturated groups at the silicon atom

SOURCE: Zhurnal obshchey khimii, v. 35, no. 1, 1965, 103-106

23  
22  
B

TOPIC TAGS: silicon, siloxane, cyclotetrasiloxane, hydrogen, vinyl, mechanical property

ABSTRACT: Compounds containing various numbers of allyl groups at the silicon atom in eight-member and six-member siloxane rings and cyclotetrasiloxane containing hydrogen and vinyl groups at various silicon atoms were synthesized. Simultaneous co-hydrolysis of methallyl dichlorosiloxane and dimethyl dichlorosilane in etheric solution yields six-member and eight-member cyclosiloxanes as shown by

Card 1/3